Introduction

This engineering report has been prepared on behalf of First Assembly of God Church in support of its application for a construction permit for a new FM broadcast station in Oglesby, Illinois. The FM operation is proposed on Channel 271A (102.1 mHz) with an effective radiated power (ERP) of 3.0 kW (H&V) and 86.3 meters antenna height above average terrain.

The closing window date for filing of the applications has been set for August 21, 1991.

Exhibits requested by Section V-B of FCC Form 301 are included in this engineering report.

Transmitter Site

The proposed FM antenna will be side-mounted on an existing guyed tower. The tower is owned by Illinois Power Company who has supplied the information concerning the tower. The proposed antenna site is located off U.S. Route 51 on the southwest edge of Oglesby, La Salle County, Illinois.

The geographic coordinates of the proposed site are as follows:

North Latitude: 41° 17' 18"

West Longitude: 89° 04' 12"

The following tabulation shows the pertinent data for the proposed installation.

Equipment Data

Transmitter: Type-approved
Antenna: Harris, FML-1E, one-bay circularly polarized

Power Data

Power Input to Antenna:	6.5 kW
Antenna Power Gain (H&V):	0.4611
Effective Radiated Power (H&V):	3.0 kW

Elevation Data

Elevation of site above mean sea level	195.1 meters (195 m*)
Elevation of top of supporting structure above ground including lighting	91.4 meters (91 m*)
Elevation of top of supporting structure above mean sea level	286.5 meters (287 m*)
Height of radiation center above ground (H&V)	80.7 meters (81 m*)
Height of radiation center above mean sea level	275.8 meters (276 m*)
Height of radiation center above average terrrain	86.3 meters (86 m*)

*To the nearest meter.

Allocation Situation

The attached Table I shows the distances to the pertinent co-channel and adjacent-channel stations from the proposed FM operation. As indicated, all distances comply with the minimum separation requirements listed under Section 73.207(b) of the Commission's Rules except to WDNL, Channel 271B, Danville,

Illinois, and WRHL-FM, Channel 272, Rochelle, Illinois. With respect to these two stations spacing requirements of Section 73.213(c)(1) of the Commission's Rules apply pursuant to MM Docket 89-517. The distances were computed using the FCC listed geographic coordinates.

Topographic Data

The terrain data between 3 to 16 km for the eight radials (each 45 degrees of azimuth starting with true north) was obtained from the National Geophysical Data Center (NGDC) 30-second data base.

Contour Data

The distances along these radials to the limits of the 3.16 mV/m (70 dBu) and the 1 mV/m (60 dBu) contours were determined from reference to Figure 1, Section 73.333 of the Rules and are shown on the attached Table II. The 3.16 mV/m and the 1 mV/m contours are shown on an attached map (Exhibit E-3).

Population and Area Data

The 1 mV/m (60 dBu) contour was transferred to a U.S. census minor civil division map of Illinois, and the population was counted using the 1980 census data. The 1990 census geographic information of county outline for the state of Illinois is not yet available. Therefore, the population data

is based on the 1980 census. Where the 1 mV/m contour included only a portion of a minor civil division, uniform distribution of the population exclusive of cities and towns was assumed. The proportionate population served by the 1 mV/m contour and cities and towns within the contour was included in the total. The land area of the 1 mV/m contour was measured with a polar planimeter using the original map.

FAA Data

The FAA Form 7460-1 has not been filed since no change in the overall height of the tower is proposed.

Main Studio Location

The main studio will be located within the 3.16 mV/m contour.

Other Radio Stations

There are no FM or TV broadcast stations located within 60 meters of the proposed site.

There are two FM stations authorized within 10 km of the proposed FM site. These stations are WLRZ (Channel 265A) and WAIV (Channel 277A). The proposed FM operation in conjunction with these stations' FM signals has the possibility of producing 3rd order intermodulation products on FM Channels 259, 265, 277, and 283.

There are no full-service TV stations located within 10 km of the proposed site.

In case of a problem to any authorized broadcast or non-broadcast facilities or radio receivers, the applicant will take the necessary remedial steps to resolve the intermodulation interference.

Blanketing Contour

The proposed blanketing contour (115 dBu) based on an ERP of 3.0 kW will extend approximately 0.68 km (0.42 mile) from the site. The applicant will comply with all the pertinent requirements of Section 73.318 of the FCC Rules and Regulations.

Environmental Statement

Applicant's proposal to side-mount its FM antenna on an existing tower does not involve construction of a new tower; therefore, the issues addressed under Section 1.1307(a)(1)-(3), (5)-(7) of the Commission's Rules are not pertinent.

The proposed side-mounting of the FM antenna will not affect districts, sites, buildings, structure, or objects significant in American history, architecture, archaeology, engineering, or culture.

It is not proposed to equip the antenna tower with high intensity white lights unless required by the FAA.

An evaluation has been made to determine compliance with the FCC specified standards for human exposure to RF radiation as set forth in the OST Bulletin No. 65 dated October 1985. For a maximum combined ERP of 6 kW (horizontal plus vertical) and a radiation center of 80.7 meters above ground level, the proposed FM operation would have a maximum of 32.4 microwatts per square centimeter (uW/cm^2) RF radiation at 2 meters above the base of the tower. The ANSI standard for the FM band is 1000 uW/cm^2.

Therefore, members of the public and personnel working around the proposed FM transmitting facility will not be exposed to levels above those prescribed by ANSI. With respect to work performed on the tower structure, the proposed station will establish procedures to ensure that workers are not exposed to levels of radio frequency radiation in excess of the "Radio Frequency Protection Guides" recommended in "American National Standard Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz", (ANSI C95.1-1982) issued by the American National Standards Institute (ANSI).

For the reasons stated above, this proposal does not involve any action specified in Section 1.1307(a) and (b) of the Commission's Rules; therefore, under Section 1.1306, it is categorically excluded from environmental processing.

Auxiliary Power

The applicant proposes to install auxiliary power at the proposed FM station.

COHEN, DIPPELL AND EVERIST, P. C.

TABLE I
FM ALLOCATION SITUATION
FOR THE PROPOSED CHANNEL 271A OPERATION AT
OGLESBY, ILLINOIS
AUGUST 1991

Channel	Call	City/State	Geographic Coordinates	Separation	
				Actual km	Required* km
271A	Proposed	Oglesby, IL	N 41°17'18" W 89°04'12"	--	--
268B	WBNQ	Bloomington, IL	N 40°27'32" W 89°00'38"	92.2	69
269A	WIXN-FM	Dixon, IL	N 41°49'29" W 89°29'51"	69.4	31
270B	WTMX	Skokie, IL	N 41°52'44" W 87°38'10"	136.4	113
271B	WDNL	Danville, IL	N 40°08'58" W 87°37'35"	175.7	163
271B	WLUM-FM	Milwaukee, WI	N 43°05'48" W 87°54'19"	222.7	178
272A	WRHL-FM	Rochelle, IL	N 41°55'24" W 89°03'30"	70.5	64
272A	WTAZ	Morton, IL	N 40°38'27" W 89°24'33"	77.4	72
273A	WZUU	Galva, IL	N 41°09'01" W 90°01'19"	81.3	31
274A	WZZT PRM D89-517	Morrison, IL	N 41°50'16" W 89°55'29"	93.8	31
217B	None within 49 km		--	--	15
218B	None within 49 km		--	--	15

*As per Section 73.207 of the Commission's Rules except to stations WDNL, Channel 271B and WRHL-FM, Channel 272A. Pursuant to MM Docket 89-517, spacing requirements of Section 73.213(c)(1) apply to these two stations.

COHEN, DIPPELL AND EVERIST, P. C.

TABLE II
COMPUTED COVERAGE DATA
FOR THE PROPOSED FM OPERATION AT
OGLESBY, ILLINOIS
AUGUST 1991

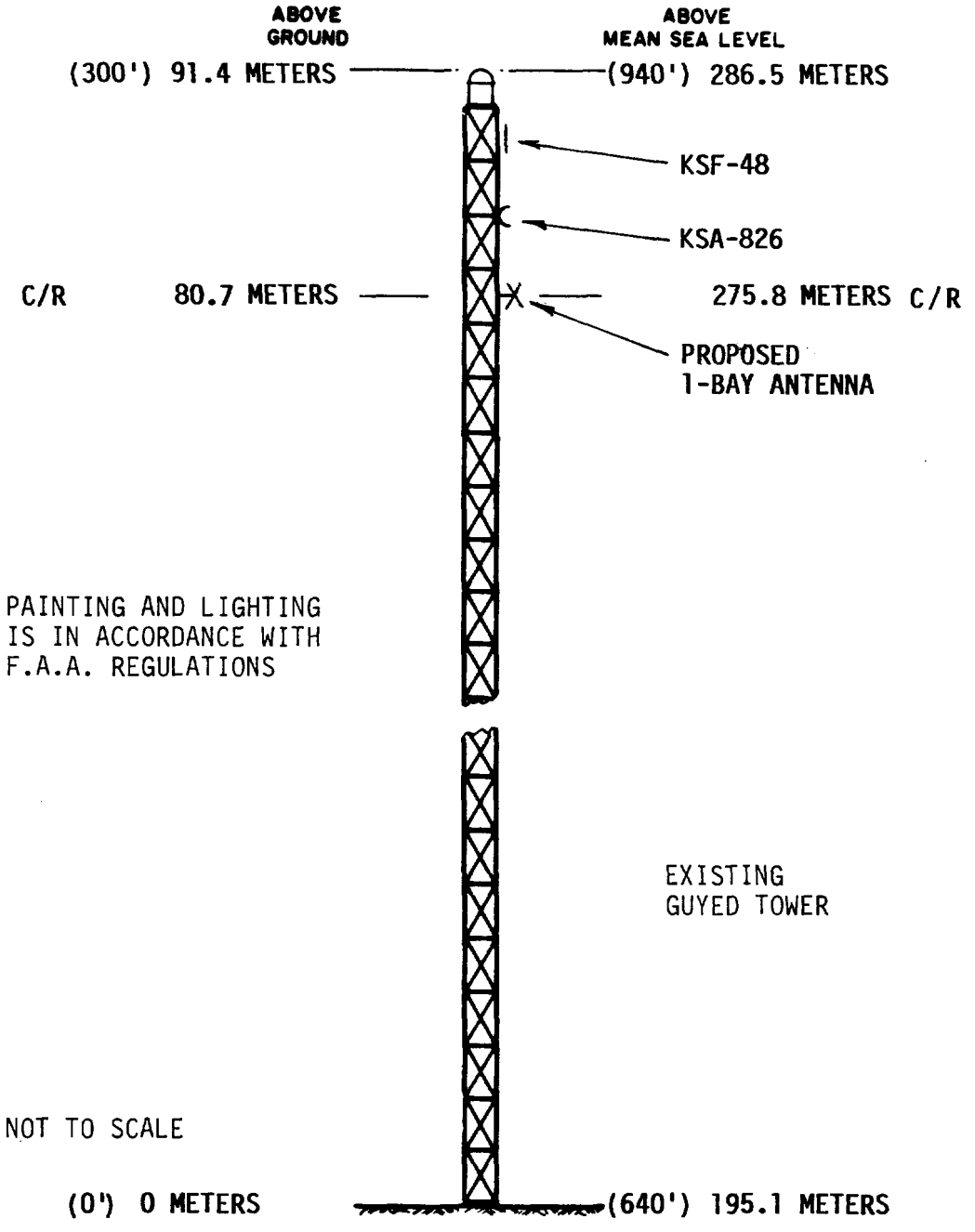
Radial Bearing N °E,T	Average* Elevation 3 to 16 km meters	Height of Radiation Center Above Average Elevation of Radial 3 to 16 km meters	Predicted Distance to Contour 3.16 mV/m km	Predicted Distance to Contour 1 mV/m km
0	181.3	94.5	13.3	23.8
45	171.6	104.2	14.0	24.9
90	193.2	82.6	12.4	22.2
135	187.7	88.1	12.9	23.0
180	203.0	72.8	11.7	20.8
225	206.1	69.7	11.4	20.3
270	192.1	83.7	12.5	22.3
315	181.0	94.8	13.3	23.8

*Based on NGDC 30-second data base

Channel 271A (102.1 mHz)
Effective Radiated Power 3.0 kW (4.77 dBk)
Average Elevation 3 to 16 km 189.5 Meters
Center of Radiation 275.8 Meters
Antenna Height Above Average Terrain 86.3 Meters

North Latitude: 41° 17' 18"
West Longitude: 89° 04' 12"

EXHIBIT E-1



VERTICAL SKETCH

FOR THE PROPOSED FM OPERATION AT

OGLESBY, ILLINOIS

AUGUST 1991

COHEN, DIPPELL and EVERIST, P.C. Consulting Engineers Washington, D.C.

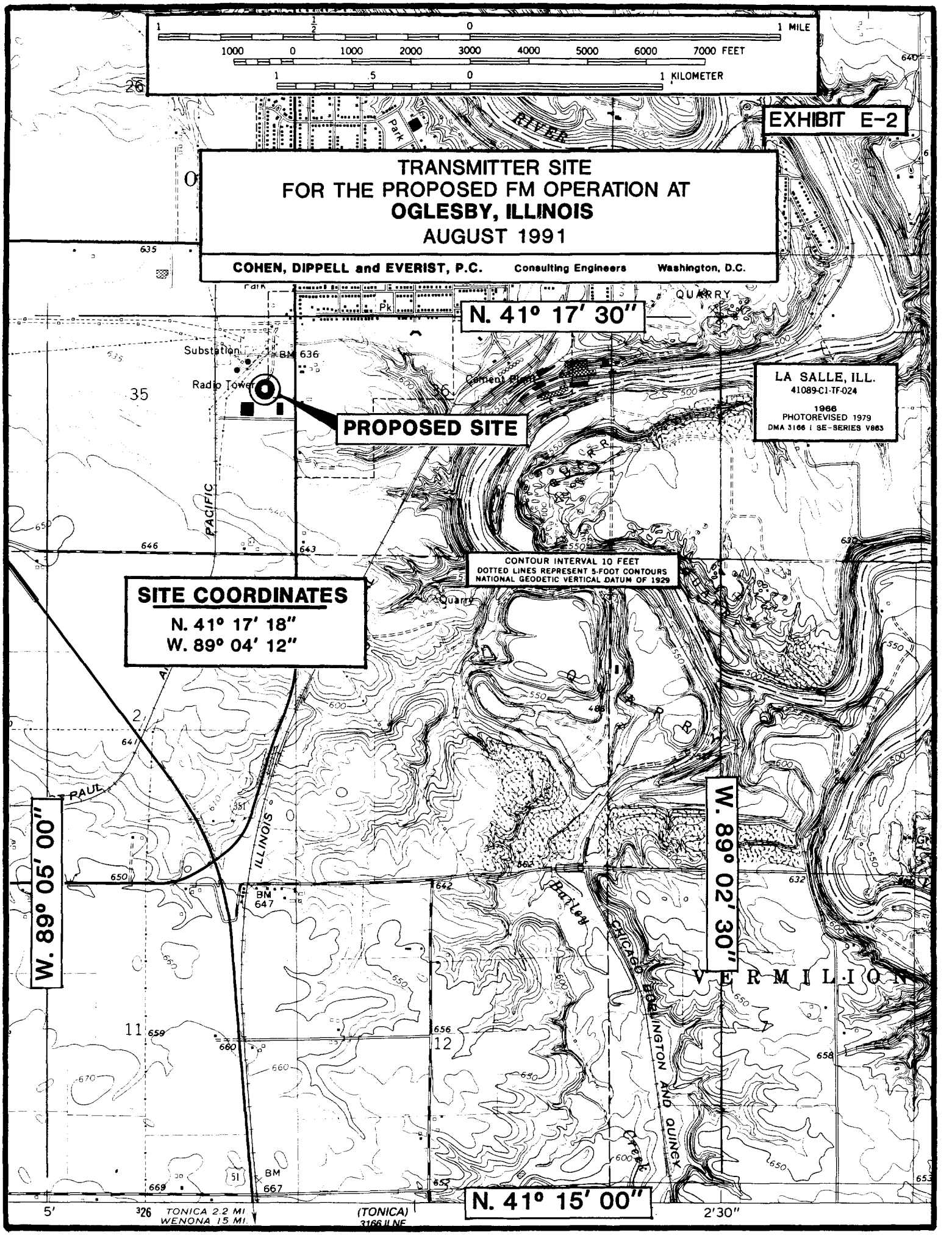


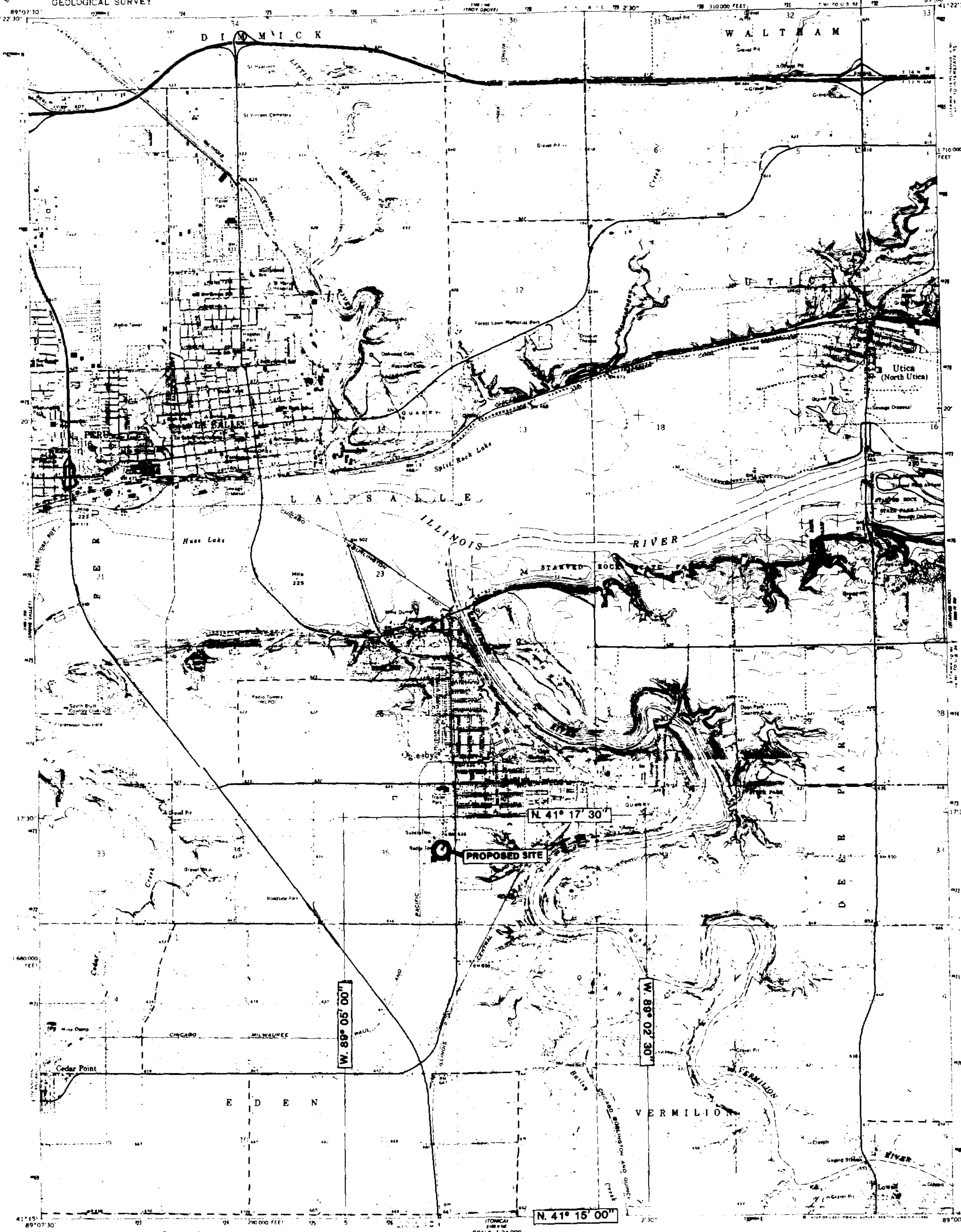
EXHIBIT E-2
TRANSMITTER SITE
FOR THE PROPOSED FM OPERATION AT
OGLESBY, ILLINOIS
AUGUST 1991
COHEN, DIPPELL and EVERIST, P.C. Consulting Engineers Washington, D.C.
N. 41° 17′ 30″
PROPOSED SITE
SITE COORDINATES
N. 41° 17′ 18″
W. 89° 04′ 12″
LA SALLE, ILL.
41089-C1-TF-024
1966
PHOTOREVISED 1979
DMA 3166 I SE-SERIES V863
CONTOUR INTERVAL 10 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929
W. 89° 05′ 00″
W. 89° 02′ 30″
N. 41° 15′ 00″
1 MILE
7000 FEET
1 KILOMETER
Substation
Radio Tower
BM 636
Cement Plant
Quarry
PACIFIC
ILLINOIS
Bailey
CHICAGO, BURLINGTON AND QUINCY
VERMILION
BM 647
BM 667
TONICA 2.2 MI
WENONA 15 MI.
(TONICA)
3166 II NE

EXHIBIT E-2A

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF ILLINOIS
DEPARTMENT OF ENERGY AND NATURAL RESOURCES
GEOLOGICAL SURVEY DIVISION
CHAMPAIGN, ILLINOIS

LA SALLE QUADRANGLE
ILLINOIS–LA SALLE CO
7.5 MINUTE SERIES (TOPOGRAPHIC)



SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1965. Field checked 1966

Polyconic projection. 1927 North American datum
10,000-foot grid based on Illinois coordinate system, east zone
1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue

Red tint indicates areas in which only landmark buildings are shown

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

There may be private inholdings within the boundaries of the National or State reservations shown on this map

UTM GRID AND 1979 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

To place on the predicted North American Datum 1983 move the projection lines 2 meters north and 7 meters east as shown by dashed corner ticks

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
AND ILLINOIS GEOLOGICAL SURVEY, CHAMPAIGN, ILLINOIS 61820
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

ROAD CLASSIFICATION
Heavy duty — Light duty
Medium duty — Unimproved dirt
Interstate Route — U.S. Route — State Route

LA SALLE, ILL.
41089-C1-TF-024
1966
PHOTOREVISED 1979
DMA 3168 I SE–SERIES V863

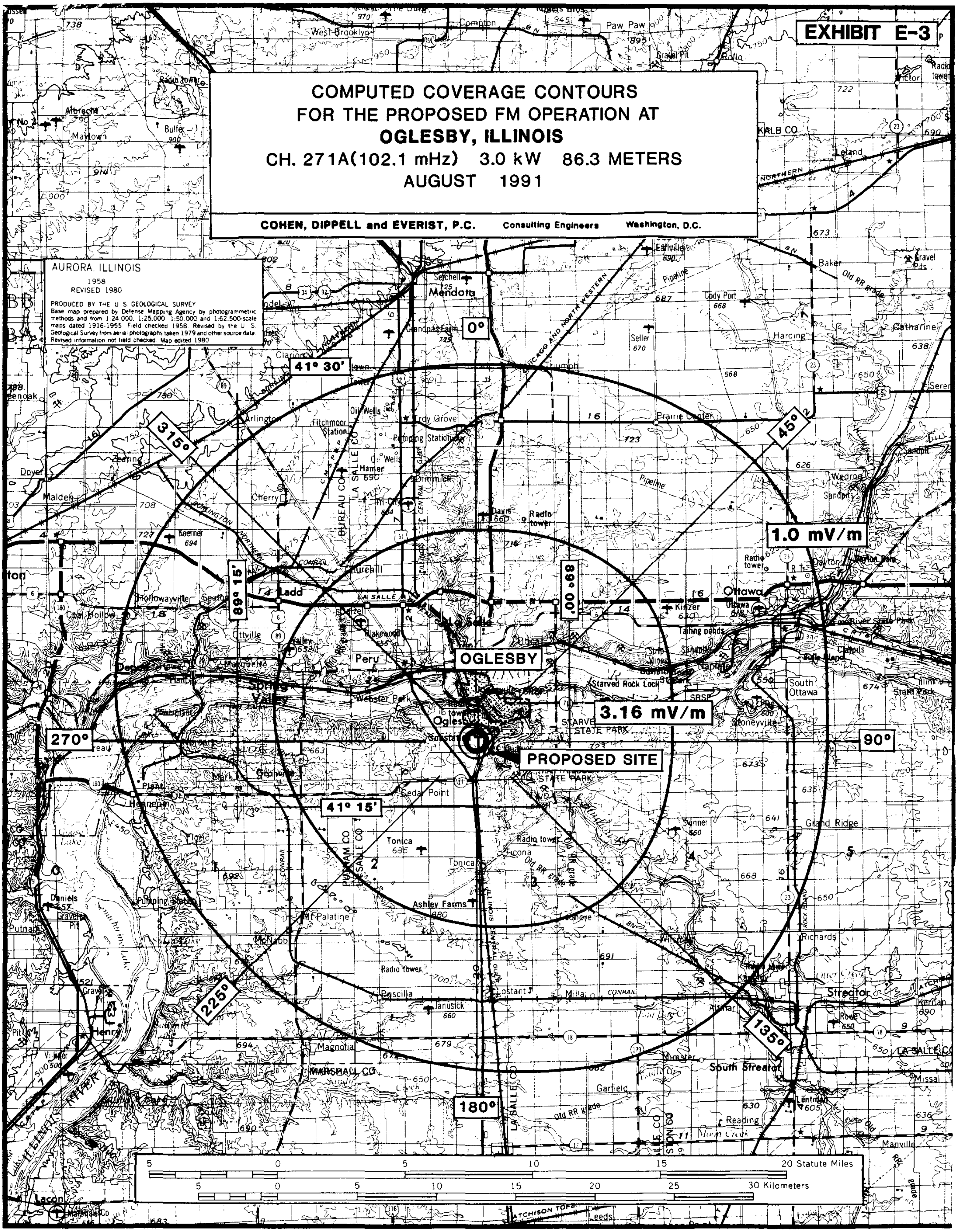


EXHIBIT E-3
COMPUTED COVERAGE CONTOURS
FOR THE PROPOSED FM OPERATION AT
OGLESBY, ILLINOIS
CH. 271A(102.1 mHz) 3.0 kW 86.3 METERS
AUGUST 1991
COHEN, DIPPELL and EVERIST, P.C. Consulting Engineers Washington, D.C.
AURORA, ILLINOIS
1958
REVISED 1980
PRODUCED BY THE U. S. GEOLOGICAL SURVEY
0°
45°
90°
135°
180°
225°
270°
315°
41° 30'
41° 15'
89° 15'
89° 00'
1.0 mV/m
3.16 mV/m
OGLESBY
PROPOSED SITE
Mendota
Ottawa
Peru
Streator
South Streator
Tonica
Hennepin
5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometers